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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2  
12821 LANCE MISSILE NUMBER 4388 ROUND NUMBER 330 ACL26 APRIL 19--ETC(U)

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  <b>Meteorological data gathered for the launching of 12821 Lance, Missile Number 4388, Round Number 330 ACL, are presented in tabular form.</b>		

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## INTRODUCTION

12821A Lance, Missile Number 4388, Round Number 330 ACL, was launched from RATSCAT, White Sands Missile Range (WSMR), New Mexico, at 0846 MST, 26 April 1979. The scheduled launch time was 0830 MST.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm/m}^3$ ), wind direction and speed, and cloud cover were made at the RATSCAT Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted anemometer at RATSCAT. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

### SITE AND ALTITUDE

RATSCAT 1560 meters (30-meter increments)

RATSCAT 2160 meters (30-meter increments)

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to balloon burst in 500-feet increments.

### SITE AND TIME

HMN 0820

JAL 0820

The data are presented in the following tabulations:

ELEVATION	3965	FT/MSL
PRESSURE	879.5	MB
TEMPERATURE	22.5	°C
RELATIVE HUMIDITY	30	%
DEW POINT	4	°C
DENSITY	1031	GM/M <sup>3</sup>
WIND SPEED	3	MPH
WIND DIRECTION	085	DEGREES
CLOUD COVER	3	C1

TABLE I. SURFACE OBSERVATIONS TAKEN AT 0846 LOCAL TIME,  
26 APRIL 1979 AT RATSCAT, 12821A LANCE, MISSILE  
NO. 4388, ROUND NO. 330 ACL.

FIXED POLE ANEMOMETER MEASURED WINDS

ANEMOMETER HEIGHT		FT.
T-TIME SEC	DIR DEG	SPEED MPH
-30	076	05
-20	077	05
-10	081	06
0.0	084	06
+10	085	05

WSTM COORDINATES: X= 513,312.04 Y= 357,958.56 H= 3,964.61

TABLE II

TYPE 12821A Lance MISSILE NO. 4388 ROUND NO. 330 ACL  
LAUNCHED FROM RATSCAT DATE 26 April 1979 TIME 0846 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH TRUE NORTH

PILOT BALLOON MEASURED WIND DATA  
(30 meter increments)

TABLE III

RELEASED FROM RATSCAT DATE 26 April 1979 TIME 0827 LSTRELEASE POINT COORDINATES (WSTM) X= 513,312.04 Y= 357,958.56 H= 3,964.61MISSILE TYPE 12821A Lance MISSILE NO. 4388 ROUND NO. 330 ACLMISSILE LAUNCHED FROM RATSCAT DATE 26 April 1979 TIME 0846 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH TRUE NORTH

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	085	03.0
30	075	04.5
60	064	06.0
90	054	07.5
120	043	09.0
150	043	09.5
180	042	09.5
210	041	09.5
240	040	09.5
270	037	10.0
300	033	10.5
330	030	11.0
360	026	11.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	028	12.0
420	029	12.5
450	031	13.0
480	032	13.0
510	028	13.0
540	024	13.0
570	020	13.0
600	015	12.5
630	013	12.5
660	011	12.5
690	009	12.5
720	006	12.0
750	005	11.0

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	004	09.5
810	003	08.5
840	002	07.0
870	360	07.0
900	357	07.0
930	355	07.0
960	352	07.0
990	350	07.5
1020	348	08.0
1050	346	08.5
1080	343	08.5
1110	343	08.5
1140	342	08.5
1170	341	08.5
1200	340	08.5
1230	337	08.0
1260	333	07.5
1290	329	07.0
1320	325	06.0
1350	326	06.5
1380	327	07.0
1410	328	07.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440	328	07.5
1470	330	08.0
1500	332	08.5
1530	334	09.0
1560	335	09.5
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

PILOT BALLOON MEASURED WIND DATA  
(30 meter increments)

TABLE IV

RELEASED FROM RATSCAT DATE 26 April 1979 TIME 0847 LSTRELEASE POINT COORDINATES (WSTM) X= 513.012.04 Y= 357.558.56 H= 3.964.61MISSILE TYPE 12821A Lance MISSILE NO. 4388 ROUND NO. 330 ACIMISSILE LAUNCHED FROM RATSCAT DATE 26 April 1979 TIME 0846 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH TRUE NORTH.

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	090	2.0
30	104	2.0
60	117	2.0
90	131	2.0
120	144	2.0
150	116	4.0
180	087	5.5
210	059	7.5
240	030	9.0
270	031	10.0
300	031	10.5
330	031	11.0
360	031	11.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	031	11.5
420	030	11.5
450	030	11.5
480	029	11.5
510	028	11.0
540	026	10.5
570	024	10.0
600	022	9.5
630	022	8.5
660	022	7.5
690	022	6.5
720	021	5.5
750	021	5.0

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	020	4.5
810	019	4.0
840	018	3.5
870	010	4.0
900	002	4.0
930	354	4.0
960	346	4.0
990	341	5.0
1020	335	5.5
1050	329	6.0
1080	323	6.5
1110	320	6.5
1140	316	6.5
1170	313	6.5
1200	309	6.5
1230	312	6.5
1260	315	6.5
1290	318	6.5
1320	321	6.5
1350	321	7.0
1380	321	7.5
1410	321	8.0

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440	321	8.0
1470	322	8.5
1500	323	8.5
1530	324	8.5
1560	324	8.5
1590	324	8.5
1620	323	8.5
1650	322	8.5
1680	321	8.5
1710	319	8.0
1740	317	8.0
1770	315	8.0
1800	312	7.5
1830	312	8.0
1860	312	8.0
1890	312	8.0
1920	311	8.0
1950	309	8.0
1980	306	8.0
2010	303	8.0
2040	300	8.0
2070	297	8.0

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
2100	294	8.0
2130	291	8.0
2160	287	8.0
2190		
2220		
2250		
2280		
2310		
2340		
2370		
2400		
2430		
2460		
2490		
2520		
2550		
2580		
2610		
2640		
2670		
2700		
2730		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
2760		
2790		
2820		
2850		
2880		
2910		
2940		
2970		
3000		
3030		
3060		

STATION ALTITUDE 4126.5' FLEET MSL  
 24 APR. 79 0920 HRS MST  
 ASCENSION NO. 202

SIGNIFICANT LEVEL DATA  
 110000Z 110000Z  
 MSL

VEUVE ET COURONNAISE  
 32.006 LAT N  
 100.04905 LONG E

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT
874.5	4126.5	20.4	42.0
850.0	4927.5	17.4	34.0
829.2	5618.9	14.9	34.0
809.0	62242.4	4.6	47.0
617.8	13550.7	-2.0	7.9
590.0	14760.1	-4.0	15.0
575.8	15380.4	-9.9	19.8
555.4	17245.7	-9.5	17.3
509.0	48974.8	-13.3	22.7
481.5	19705.7	-15.6	24.5
453.5	22342.8	-20.1	26.7
421.5	23173.3	-22.4	29.0
400.0	24434.8	-25.2	33.2
369.4	26520.6	-29.5	40.6
348.2	27697.9	-33.4	40.6
332.8	28536.7	-33.2	39.3
300.0	31109.3	-39.7	36.0
259.0	35115.1	-51.3	
241.6	35844.2	-52.0	
225.1	37344.0	-53.4	
212.0	38603.8	-57.0	
209.0	39317.9	-57.5	
181.7	41842.2	-54.2	
168.4	43383.8	-60.7	
164.4	43875.4	-57.4	
150.0	45763.8	-60.4	
130.6	45582.0	-65.0	
101.2	33663.1	-66.7	
100.0	33720.2	-65.4	
96.1	34723.0	-65.4	

STATION ALTITUDE 4126.59 FEET MSL  
26 APR. 79  
0820 HRS MST  
ASCENSION NO. 202

UPPER AIR DATA  
110001202  
MILLIBARS

STATION CUMULATIVE  
32.50865 LAT DEG  
106.07965 LONG DEG

GEOMETRIC PRESSURE  
ALTITUDE  
HSL FEET MILLIBARS

TEMPERATURE  
AIR DE-POINT  
DEGREES CENTIGRADE

4126.6	874.5	23.2	6.9	42.0	1037.1	666.7	250.0	1.0	1.000274
4500.0	863.0	18.9	4.4	38.3	1022.6	667.0	1.000266		
5029.0	847.8	17.1	1.2	34.0	1014.4	664.7		1.000256	
5599.0	832.7	15.3	7.4	31.0	1002.7	662.0		1.000250	
5930.0	817.7	14.1	1.0	35.3	989.2	661.1		1.000246	
6300.0	802.7	14.0	1.3	37.0	972.0	659.3		1.000243	
6500.0	792.0	11.9	1.7	39.0	960.9	656.6		1.000239	
7299.0	789.3	10.8	2.1	40.5	947.4	657.3		1.000236	
7500.0	774.0	10.8	2.5	42.2	933.6	658.0		1.000232	
8029.0	759.7	9.7	2.5	44.0	923.4	654.7		1.000229	
8500.0	749.1	9.6	2.9	45.0	917.4	653.5		1.000225	
9000.0	732.6	7.5	3.4	45.7	907.4	652.2		1.000221	
9500.0	719.3	6.4	3.9	47.4	894.1	652.2		1.000217	
10000.0	706.2	5.3	4.5	49.2	881.4	650.9		1.000213	
10500.0	593.2	4.3	1.7	51.1	865.6	647.6		1.000214	
11000.0	642.3	3.2	2.3	53.2	855.4	645.4		1.000211	
11500.0	567.5	2.2	5.6	55.3	842.6	642.6		1.000208	
12000.0	555.1	1.2	6.3	57.4	830.0	640.0		1.000204	
12500.0	542.8	2	6.8	59.6	817.0	644.3		1.000201	
13000.0	430.8	0.9	7.3	61.7	805.3	643.0		1.000197	
13500.0	519.4	-1.9	7.8	63.9	793.3	642.3		1.000194	
14000.0	607.4	-2.7	10.5	54.6	781.0	641.2		1.000188	
14500.0	575.7	-3.6	14.0	44.2	768.6	640.0		1.000182	
15000.0	584.3	-1.4	17.3	35.4	750.5	637.0		1.000177	
15500.0	373.1	-5.2	19.5	31.5	741.5	635.0		1.000173	
16000.0	562.1	-4.4	1.6	37.6	733.4	633.5		1.000171	
16500.0	351.2	-7.7	17.8	45.8	722.6	632.1		1.000169	
17000.0	540.6	-9.9	17.4	50.0	711.6	632.0		1.000167	
17500.0	530.0	-10.1	16.1	51.8	701.1	632.0		1.000164	
18000.0	519.6	-11.2	17.6	47.5	693.3	630.7		1.000161	
18500.0	505.4	-12.3	21.2	47.2	679.7	629.3		1.000158	
19000.0	499.4	-13.4	22.7	45.0	669.2	628.1		1.000155	
19500.0	489.5	-14.6	23.7	45.6	659.1	626.6		1.000152	
20000.0	479.8	-13.9	24.7	46.0	649.0	625.2		1.000149	
20500.0	475.1	-16.7	25.6	45.6	639.2	624.4		1.000147	
21000.0	465.7	-17.0	26.5	45.0	629.0	623.0		1.000144	
21500.0	451.9	-18.5	27.1	45.4	617.2	621.9		1.000141	
22000.0	442.3	-19.4	28.7	45.2	607.0	620.7		1.000139	
22500.0	433.4	-20.4	29.3	46.8	597.2	619.5		1.000136	
23000.0	424.6	-21.9	28.9	45.2	589.1	617.7		1.000134	
23500.0	415.9	-23.1	29.7	54.4	577.1	616.2		1.000132	

STATION ALTITUDE 4125.53 FEET MSL  
26 APR. 79 O620 HRS MST  
ASCENSION NO. 202

UPPER AIR DATA  
11000-0222  
HULLMAN

STATION COORDINATES  
52°00'00" LAT 06°  
106°07'00" LONG 064

GEOMETRIC PRESSURE ALTITUDE MSL FEET	TEMPERATURE AIR DEPOINT DEGREES CENTIGRADE	RELAT. HUMID. PERCENT	RELAT. HUMID. GR/STANDARD METER	VELOCITY OF SOUND KNOTS	VELOCITY OF WIND KNOTS	WIND DIRECTION DEGREES	WIND VELOCITY KNOTS	INDEX OF REFRACTION
24000.0	-407.3	-31.6	50.5	569.6	614.3	469.5	44.7	1.000150
24500.0	-396.9	-33.4	46.5	561.6	613.4	490.3	45.2	1.000127
25000.0	-386.6	-36.3	42.6	551.5	611.9	269.4	46.0	1.000125
25500.0	-382.4	-37.9	39.1	542.6	610.5	266.2	46.8	1.000122
26000.0	-374.4	-39.9	35.2	532.6	607.6	264.2	47.7	1.000120
26500.0	-366.6	-39.0	35.0	525.1	607.5	263.5	49.4	1.000118
27000.0	-358.9	-31.4	40.4	517.0	602.3	492.6	51.2	1.000116
27500.0	-351.2	-32.8	40.5	507.0	601.0	281.8	53.0	1.000115
28000.0	-343.7	-33.3	43.1	497.2	604.1	261.8	55.6	1.000114
28500.0	-336.5	-33.2	49.3	485.3	603.5	492.0	56.7	1.000109
29000.0	-329.0	-34.4	52.9	473.1	602.0	291.7	59.9	1.000107
29500.0	-321.4	-35.6	56.2	472.1	600.4	261.7	59.9	1.000105
30000.0	-314.9	-36.4	60.1	464.9	593.8	261.0	56.5	1.000104
30500.0	-308.4	-36.2	65.5	456.8	597.2	280.3	54.1	1.000102
31000.0	-301.9	-37.4	70.9	449.3	595.0	279.7	53.0	1.000100
31500.0	-294.7	-40.6	74.7	441.9	593.8	479.3	52.4	1.000098
32000.0	-288.1	-42.4	77.1	434.8	592.3	479.3	51.2	1.000097
32500.0	-281.6	-43.6	79.3	427.9	590.2	279.5	50.0	1.000095
33000.0	-275.3	-45.0	82.1	420.9	588.1	279.5	48.7	1.000094
33500.0	-269.1	-46.9	84.1	413.5	586.8	278.9	49.0	1.000092
34000.0	-263.0	-48.3	87.9	406.7	584.8	478.3	50.1	1.000091
34500.0	-257.1	-49.3	87.4	400.9	584.9	278.3	51.1	1.000089
35000.0	-251.3	-50.7	89.3	393.5	581.1	278.3	52.1	1.000088
35500.0	-245.5	-52.1	91.5	386.9	579.3	260.4	54.6	1.000086
36000.0	-239.8	-53.1	93.1	379.7	577.9	492.4	57.9	1.000085
36500.0	-234.2	-53.3	94.9	372.9	575.9	264.2	50.1	1.000083
37000.0	-228.6	-53.6	95.3	365.0	577.0	478.3	51.1	1.000081
37500.0	-223.4	-54.2	95.4	358.3	576.1	279.5	52.1	1.000080
38000.0	-218.2	-55.5	95.5	350.9	574.3	260.4	54.6	1.000078
38500.0	-213.1	-56.7	95.7	344.2	574.8	266.1	52.9	1.000078
39000.0	-208.0	-57.2	95.3	337.4	573.4	372.9	55.3	1.000076
39500.0	-203.1	-57.4	95.4	330.5	572.5	266.4	57.4	1.000075
40000.0	-198.3	-57.6	95.5	323.8	572.3	347.8	58.2	1.000073
40500.0	-193.5	-57.7	95.5	317.0	572.3	340.1	58.5	1.000071
41000.0	-188.7	-57.9	95.7	310.2	571.3	267.7	59.2	1.000070
41500.0	-184.1	-58.1	95.8	303.4	570.9	371.3	59.7	1.000068
42000.0	-180.4	-58.4	95.8	296.7	570.9	272.1	60.7	1.000067
42500.0	-175.7	-59.2	95.7	289.9	567.0	267.3	60.4	1.000065
43000.0	-171.5	-60.1	95.5	283.4	566.7	268.5	60.5	1.000064
43500.0	-167.4	-60.4	95.4	276.1	566.3	271.1	62.6	1.000061

•• AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4126.57 FLET DSL  
25 APR 79 0920 HRS MST  
ASCENSION NO. 202

UPPER AIR DATA  
NO. 202

GEOMETRIC COORDINATES  
32°08'06" LAT N  
100°47'05" LON W

GEOMETRIC ALTITUDE METERS	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	ATMOSPHERIC PRESSURE PERCENT	ATMOSPHERIC CONDUCTIVITY MICRONS	SPECIFIC HEAT AT CONSTANT PRESSURE KCAL/KG	WIND VELOCITY METERS PER SECOND	WIND DIRECTION DEGREES TRUE	WIND DIRECTION DEGREES UP REFRACTION
44900.0	103.4	-52.5	200.4	565.0	409.0	73.0	1.000059	
44500.0	139.5	-52.7	200.3	564.2	409.1	71.5	1.000059	
45000.0	155.7	-52.7	200.3	563.9	409.4	69.0	1.000057	
45500.0	161.9	-52.1	200.4	563.7	409.2	65.4	1.000055	
46000.0	148.3	-52.6	200.0	566.0	409.9	60.9	1.000051	
46500.0	144.7	-60.5	200.1	566.9	409.4	56.2	1.000050	
47000.0	141.2	-62.3	200.2	565.7	409.8	57.5	1.000052	
47500.0	137.7	-63.2	200.3	565.6	407.6	56.6	1.000051	
48000.0	134.1	-64.0	200.4	563.4	409.2	63.4	1.000050	
48500.0	131.1	-64.9	201.3	564.2	409.8	67.9	1.000049	
49000.0	127.4	-65.1	201.2	561.7	291.9	71.0	1.000049	
49500.0	124.7	-65.3	201.1	561.6	294.0	75.7	1.000047	
50000.0	121.7	-65.5	200.4	561.5	291.3	75.1	1.000045	
50500.0	119.7	-65.6	197.2	561.2	261.6	73.9	1.000044	
51000.0	115.7	-65.8	199.5	561.0	472.1	69.6	1.000043	
51500.0	112.9	-65.9	159.8	560.7	472.3	64.1	1.000042	
52000.0	110.1	-66.1	155.3	560.5	473.3	55.3	1.000041	
52500.0	107.4	-66.3	150.7	560.3	473.3	55.7	1.000040	
53000.0	104.7	-66.5	170.5	560.1	400.4			
53500.0	102.2	-66.6	172.3	557.5	400.3			
54000.0	99.6	-66.3	167.0	560.3	400.7			
54500.0	97.2	-65.7	163.4	560.1				



STATION ALTITUDE 4125.59 FEET MSL  
26 APR. 79 Q820 MRS NS:  
ASCENSION NO. 202

ATMOSPHERIC LEVELS  
LOGARITHMIC  
MILLIBARS

GEOMETRY COORDINATES  
42.000000 LAT. W.  
100.000000 LONG. W.

PRESSURE GEOPOTENTIAL MILLIBARS	LEVEL FEET	GEOPOTENTIAL MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	REFRACTION PERIOD DEGREES (hr.)	WINDS WINDS (km.)
630.0	4924.	17.4	1.4	24.	9777.0 9797.0 X 9934.0 9944.0 X
600.0	6506.	12.8	-1.1	27.	
750.0	3372.	8.9	-2.6	43.	314.0 116.0
700.0	19233.	4.5	-4.7	50.	281.0 150.0
650.0	12232.	0.8	-6.9	56.	47.0 4.0
600.0	14297.	-3.3	-12.7	120.	304.0 26.4
550.0	16539.	-7.8	-17.9	44.	278.0 4.9
500.0	19946.	-13.3	-22.7	45.	27.0 35.4
450.0	21559.	-18.6	-27.0	45.	219.0 43.6
400.0	24366.	-25.2	-33.2	47.	270.0 45.1
350.0	27530.	-33.1	-40.5	47.	281.7 5.2
300.0	31649.	-39.7		274.0	224.0
250.0	35910.	-51.0		278.7	52.3
200.0	37724.	-57.5		466.7	76.0
175.0	42484.	-59.4		257.9	71.0
150.0	45643.	-60.2		294.0	63.0
125.0	49321.	-65.3		291.1	75.2
100.0	53763.	-66.4			

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN INTERPOLATION.

XX = NO DATA INVALID DUE TO MISSING MEAN AZIMUTH AND ELEVATION ANALYSIS.

STATION ALTITUDE 4126.59 FEET MSL  
26 APR. 77 0820 HRS MST  
ASCENSION NO. 202

WRE STATION LEVELS  
110000Z 20Z  
MATERIAL

GEODETIC COORDINATES  
52.00000 LAT  
16.00000 LONG

GEOPOTENTIAL ALTITUDE DEGREES	DIRECTION DEG (TMI)	WIND DATA		E- 10 <sup>3</sup>	JET RI. WER 10 <sup>3</sup> C	TEMPERATURE AIR 10 <sup>3</sup> C	PRESSURE 10 <sup>3</sup> hPa
		SPED 10 <sup>3</sup>	DIR 10 <sup>3</sup>				
1632.	999.000	7497.000	-9999.000	99	99	99	1000.4
1503.	291.	39.	-14.	30.	97	97	995.2
1471.	292.	34.	-12.	30.	99	99	990.2
1295.	280.	37.	-11.	35.	99	99	959.4
1211.	267.	37.	-11.	30.	99	99	927.5
1066.	279.	27.	-9.	47.	99	99	911.0
945.	230.	27.	-5.	27.	99	99	899.7
839.	282.	27.	-6.	47.	97	93.1	890.2
744.	290.	23.	-9.	22.	98	95.2	900.4
657.	279.	22.	-11.	22.	97	94.9	930.2
577.	279.	16.	-9.	16.	97	93.3	900.2
504.	290.	19.	-9.	14.	98	97.8	890.2
436.	202.	11.	-7.	14.	97	93.3	900.4
372.	275.	11.	-1.	14.	97	94.8	930.2
312.	281.	6.	-2.	6.	98	94.8	970.2
255.	314.	0.	-11.	7.	92	96.7	930.2
201.	999.000	999.000	-9977.000	999.	12.0	99.0	900.2
150.	999.000	999.000	-9999.000	999.	17.1	99.0	900.2

\*\* WIND DATA NOT COMPUTED DUE TO MISSING HIGH ALTITUDE AND ELECTRONIC ANOMALIES.

STATION ALTITUDE 4051.00 FEET MSL  
26 APR. 79 0820 HRS MST  
ASCENSION NO. 44

## SIGNIFICANT LEVEL DATA

## STUDENTS' COORDINATES

PRESSURE GEOMETRIC MILLIBARS	ALTITUDE MILLIBARS MSL FLEI	TEMPERATURE AIR DEGREES CENTIGRADE	
		DEGREES CENTIGRADE	PERCENT RELATIVE HUMIDITY
877.3	4051.0	22.0	56.9
867.4	4374.2	20.9	30.0
850.0	4946.4	19.4	20.0
768.6	7719.5	10.5	32.0
700.0	10272.5	4.7	42.0
674.4	11259.7	2.7	32.0
647.4	12354.5	0.3	47.0
630.0	13071.9	-1.0	46.9
595.2	14551.9	-7.0	46.7
566.6	14932.4	-9.4	46.6
570.0	15674.1	-5.9	46.0
550.2	16492.0	-8.0	42.7
500.0	19031.1	-13.0	22.0
465.4	20732.3	-16.7	26.5
427.4	22756.1	-21.5	27.7
415.0	23577.3	-24.2	25.5
400.0	24960.6	-25.3	24.0
347.2	27744.7	-33.7	20.3
328.2	29277.7	-36.0	19.3
300.0	31113.0	-40.0	19.0
250.0	35137.4	-51.4	19.0
234.0	36696.6	-53.2	19.0
207.4	39052.4	-57.8	19.0
200.0	39806.0	-59.4	19.0
171.6	42978.9	-59.7	19.0
164.4	43190.2	-58.7	19.0
150.0	45757.4	-57.9	19.0
126.0	49451.0	-56.9	19.0
100.0	53079.0	-58.7	19.0
85.4	56950.7	-59.7	19.0
79.2	59943.6	-59.7	19.0
70.0	61142.7	-59.7	19.0
65.0	62415.0	-59.7	19.0
57.6	65152.3	-59.7	19.0
54.2	68052.3	-59.7	19.0
39.0	73241.3	-55.9	19.0
30.0	76538.0	-55.9	19.0
23.4	81224.3	-55.9	19.0
20.0	87663.8	-55.9	19.0
12.6	97942.7	-55.9	19.0

STATION ALTITUDE 4051.00 FEET MSL  
26 APR. 79. 0820 HRS MST  
ASCENSION NO. 44

STRUCTURE COURRIELÉE

STATION ALTITUDE 4051.0' FEET MSL  
26 APR. 79 0820 HRS MST  
ASCENSION NO. 44

UPPER AIR DATA  
11600100044  
MALLEEN

GEOMETRIC PRESSURE	TEMPERATURE AIR DEGREES CENTIGRADE	HELIUM PERCENT	SPEED OF SOUND IN/CUBIC METERS	REFLECTION - SPECULAR DIRECTION - ANGLES IN DEGREES	WIND DATA	INFLUX OF REFRACTION
44000.0	197.8	-24.8	75.6	571.7	614.1	1.00013
24300.0	379.3	-25.6	-30.9	561.7	613.1	1.000128
25000.0	340.9	-26.8	-32.3	579.4	552.0	1.000126
45500.0	342.7	-23.1	-33.7	577.9	543.9	1.000123
26000.0	371.6	-29.3	-35.2	566.4	549.0	1.000121
24500.0	366.7	-30.5	-36.6	541.9	520.4	1.000119
27000.0	359.0	-31.8	-38.6	537.4	513.0	1.000117
351.4	351.4	-33.0	-39.5	511.9	507.6	1.000115
347.0	347.0	-34.1	-41.5	466.7	511.1	1.000113
24900.0	336.6	-35.0	-44.5	366.6	492.2	1.000110
24900.0	329.3	-35.9	-48.2	266.6	483.4	1.000108
49500.0	322.1	-36.9	-51.6	194.8	475.0	1.000106
31000.0	315.1	-38.0	-55.6	13.7	466.8	1.000104
31500.0	306.2	-39.1	-61.1	7.5	456.7	1.000102
31000.0	301.5	-40.2	-73.3	1.4	450.8	1.000100
31500.0	294.7	-41.5	-	-	443.2	1.000099
32000.0	268.1	-42.9	-	-	435.9	1.000097
32500.0	481.6	-44.3	-	-	423.6	1.000095
33000.0	475.2	-45.7	-	-	421.5	1.000093
33500.0	269.0	-47.1	-	-	414.6	1.000092
34000.0	263.0	-48.5	-	-	402.0	1.000091
34500.0	257.0	-49.9	-	-	394.9	1.000090
35000.0	251.2	-51.3	-	-	491.1	1.000089
35500.0	445.4	-52.0	-	-	582.1	1.000088
36000.0	439.7	-52.5	-	-	589.4	1.000087
36500.0	234.2	-53.0	-	-	379.0	1.000086
37000.0	228.7	-53.8	-	-	363.2	1.000085
37500.0	423.3	-54.8	-	-	359.3	1.000084
38000.0	218.1	-55.7	-	-	349.4	1.000083
38500.0	212.9	-56.7	-	-	342.7	1.000082
39000.0	207.9	-57.7	-	-	336.2	1.000081
39500.0	203.0	-57.7	-	-	328.2	1.000080
40000.0	198.2	-57.7	-	-	324.4	1.000079
40500.0	193.4	-58.1	-	-	313.3	1.000078
41000.0	188.6	-58.4	-	-	298.1	1.000077
41500.0	184.3	-58.7	-	-	288.4	1.000076
42000.0	179.9	-59.1	-	-	242.7	1.000075
42500.0	175.6	-59.4	-	-	579.5	1.000074
43000.0	171.4	-59.7	-	-	279.7	1.000073
43500.0	167.3	-	-	-	272.4	1.000072

AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION

STATION ALTITUDE 4051.00 FLET MSL  
26 APR. 79 0820 HRS MST  
ASCENSION HQ. 44

UPPER AIR DATA  
1160000444  
JALLEN

UNIVERSITY COORDINATES  
J3016714 LAI UEN  
106.49511 LUN UEN

GEOMETRIC ALTITUDE MSL FLET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC MEIER	SPEED OF WIND KM/H	WIND DATA DIRECTION DEGREES (TRUE) KNOTS	INFLUX OF DEFLECTION
44000.0	103.3	-58.7	265.3	270.5	289.7	73.2	1.0000659
44500.0	109.4	-59.0	279.3	270.1	240.9	72.7	1.0000588
45000.0	155.6	-59.3	253.5	567.7	292.0	71.6	1.0000566
45500.0	151.9	-59.6	247.8	569.3	242.7	69.5	1.0000555
46000.0	148.2	-60.3	242.5	560.4	293.5	67.5	1.0000544
46500.0	144.6	-61.2	237.7	567.1	294.0	56.1	1.0000533
47000.0	141.1	-62.2	233.0	565.8	294.5	64.7	1.0000522
47500.0	137.6	-63.1	246.3	561.6	295.0	63.7	1.0000511
48000.0	134.3	-64.1	243.8	565.3	295.4	62.7	1.0000500
48500.0	131.0	-65.1	217.3	562.0	295.4	61.7	1.0000499
49000.0	127.8	-56.0	215.0	560.7	275.2	60.6	1.0000488
49500.0	124.7	-56.9	210.6	559.5	294.9	59.9	1.0000477
50000.0	121.6	-57.1	245.6	539.2	294.4	60.3	1.0000466
50500.0	118.6	-67.3	290.7	554.9	293.8	60.7	1.0000455
51000.0	115.6	-67.5	195.9	556.6	293.2	63.1	1.0000444
51500.0	112.7	-57.7	191.2	558.4	292.7	65.6	1.0000433
52000.0	109.7	-57.9	196.6	558.1	212.2	68.0	1.0000422
52500.0	107.2	-68.1	182.2	557.8	291.8	70.4	1.0000411
53000.0	104.5	-69.3	177.8	557.5	491.4	71.4	1.0000400
53500.0	101.9	-69.5	173.5	557.3	241.0	69.0	1.0000399
54000.0	99.4	-69.4	169.1	557.4	290.7	66.7	1.0000389
54500.0	97.0	-67.2	164.0	559.0	240.6	64.8	1.0000377
55000.0	94.6	-66.1	159.1	560.6	290.5	62.9	1.0000353
55500.0	92.3	-64.9	154.3	564.2	291.5	60.7	1.0000344
56000.0	90.0	-63.7	149.7	563.8	249.7	58.1	1.0000333
56500.0	87.8	-62.6	145.2	565.3	246.2	54.4	1.0000322
57000.0	85.6	-61.5	140.9	566.6	333.0	38.5	1.0000311
57500.0	83.4	-61.2	137.3	567.2	319.6	23.8	1.0000301
58000.0	81.6	-60.9	133.8	567.6	351.8	13.8	1.0000290
58500.0	79.6	-60.6	130.4	568.0	493.3	13.7	1.0000289
59000.0	77.7	-60.3	127.1	568.4	76.4	20.8	1.0000286
59500.0	75.8	-60.0	123.9	568.8	12.8	4.5	1.0000255
60000.0	74.0	-59.8	120.6	569.1	80.0	15.4	1.0000244
60500.0	72.2	-59.3	118.2	568.4	79.0	12.0	1.0000233
61000.0	70.5	-60.8	115.7	567.6	72.5	8.1	1.0000226
61500.0	68.8	-60.7	112.8	567.9	35.0	4.5	1.0000215
62000.0	67.1	-60.2	109.8	568.5	2.5	3.4	1.0000204
62500.0	65.5	-59.8	107.0	569.0	42.9	5.3	1.0000193
63000.0	64.0	-60.1	104.6	568.6	30.1	6.1	1.0000182
63500.0	62.4	-60.4	102.2	568.2	0.6	1.0000171	

STATION ALTITUDE 4951.00 FEET MSL  
26 APR. 79 0820 HRS MST  
ASCENSION NO. 44

UPPER AIR DATA  
110000044  
JALLEN

STATION COORDINATES  
33°07'12" LAI UTN  
106°49'51" LON UTN

GEOMETRIC PRESSURE ALTITUDE MILLIBARS DEGREES CENTIGRADE

TEMPERATURE AIR DEWPOINT PERCENT REL. HUM. DENSITY SPOE OF VIBRATION SPOE OF VIBRATION SPOE OF VIBRATION

64000.0	60.9	-60.7	99.9	567.8	342.1	1.0000022
64500.0	59.5	-61.0	97.6	567.4	349.8	1.0000022
65000.0	58.0	-61.3	95.4	567.0	349.1	1.0000021
65500.0	56.6	-61.4	93.1	567.2	350.3	1.0000021
66000.0	55.3	-62.9	90.7	567.5	350.9	1.0000020
66500.0	53.3	-60.7	89.7	567.5	356.8	1.0000020
67000.0	52.7	-60.4	86.2	568.3	370.5	1.0000019
67500.0	51.4	-60.1	84.0	568.6	378.7	1.0000019
68000.0	50.2	-57.3	81.9	569.0	384.7	1.0000018
68500.0	49.0	-57.4	79.0	569.5	389.6	1.0000018
69000.0	47.6	-59.1	77.8	570.0	93.2	1.0000017
69500.0	46.7	-58.7	75.8	570.5	95.5	20.0
70000.0	45.6	-58.3	73.9	571.0	95.5	17.3
70500.0	44.3	-57.9	72.0	571.5	95.5	16.6
71000.0	43.4	-57.5	70.2	572.1	94.1	16.4
71500.0	42.4	-57.1	68.4	572.6	93.7	16.3
72000.0	41.4	-56.8	66.6	573.1	94.7	1.0000017
72500.0	40.4	-56.4	64.9	573.6	345.2	5.1
73000.0	39.5	-55.0	63.3	574.1	347.2	4.9
73500.0	38.5	-55.5	61.7	574.7	349.3	4.8
74000.0	37.6	-55.0	60.1	575.4	329.0	6.2
74500.0	36.8	-54.5	58.6	576.4	349.3	1.0000013
75000.0	35.9	-53.9	57.1	576.8	297.0	1.0000013
75500.0	35.1	-53.4	55.6	577.5	243.7	1.0000012
76000.0	34.3	-52.9	54.2	578.2	240.5	17.9
76500.0	33.5	-52.4	52.8	578.9	495.3	15.7
77000.0	32.7	-51.8	51.5	579.6	472.8	8.0
77500.0	31.9	-51.3	50.2	580.2	132.8	7.8
78000.0	31.2	-50.8	49.9	580.9	119.5	22.3
78500.0	30.5	-50.3	47.6	581.6	116.9	29.8
79000.0	29.6	-49.9	46.5	582.1	115.1	25.0
79500.0	29.1	-47.6	45.4	582.2	112.3	20.3
80000.0	28.4	-47.0	44.3	582.3	106.1	16.6
80500.0	27.8	-49.6	43.3	582.5	102.4	14.5
81000.0	27.2	-49.5	42.3	582.6	94.9	12.6
81500.0	26.5	-49.5	41.3	582.7	86.2	10.2
82000.0	25.9	-49.4	40.4	582.8	73.5	6.6
82500.0	25.3	-49.3	37.4	582.9	39.0	4.0
83000.0	24.8	-47.2	39.5	583.0	322.5	3.9
83500.0	24.2	-47.0	37.6	583.1	342.9	3.8

STATION ALTITUDE 4051.00 FEET MSL  
26 APR. 79 0320 HRS MST  
ASCENSION NO. 44

UPPER AIR DATA  
110000044  
JALLEN

STATION COORDINATES  
33°16'07.12 LAT. U.E.  
106°49'51.1 LON. U.E.

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	TEMPERATURE DEWPOINT DEGREE CENTIGRADE	KELVIN PERCENT RH	SPEED OF WIND DATA KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND DATA KNOTS	INDEX OF REFRACTION
84000.0	23.6	-47.0		36.6	58.0.2	332.6	3.7	1.000003
84500.0	23.1	-48.7		35.9	58.3.6	328.1	3.2	1.000003
85000.0	22.6	-43.2		35.0	56.4.3	62.8	2.0	1.000003
85500.0	22.1	-47.6		34.1	58.5.0	99.2	5.4	1.000003
86000.0	21.6	-47.1		33.3	58.5.7	106.8	9.3	1.000003
86500.0	21.1	-46.6		32.4	58.6.4	107.9	9.5	1.000003
87000.0	20.6	-46.0		31.6	58.7.1	106.9	9.7	1.000003
87500.0	20.2	-45.5		30.6	58.7.8	109.9	9.9	1.000003
88000.0	19.7	-45.2		30.1	58.6.2	112.8	11.2	1.000003
88500.0	19.3	-45.0		29.4	58.6.5	115.3	12.8	1.000003
89000.0	18.9	-44.8		28.7	58.6.7	117.3	14.4	1.000003
89500.0	18.4	-44.6		28.1	58.9.0	119.7	14.6	1.000003
90000.0	18.0	-44.4		27.4	58.9.2	122.5	14.2	1.000003
90500.0	17.6	-44.2		26.8	58.9.4	125.5	13.9	1.000003
91000.0	17.2	-44.0		26.2	58.9.7	130.0	12.7	1.000003
91500.0	16.8	-43.8		25.6	59.1.9	136.0	10.6	1.000003
92000.0	16.5	-43.7		25.0	59.1.2	149.4	6.6	1.000003
92500.0	16.1	-43.5		24.4	59.0.4	162.3	6.6	1.000003
93000.0	15.7	-43.3		23.9	59.0.7	152.5	11.5	1.000003
93500.0	15.4	-43.1		23.3	59.0.9	169.1	21.7	1.000003
94000.0	15.1	-42.9		22.8	59.1.1	214.5	31.4	1.000003
94500.0	14.7	-42.7		22.2	59.1.4	272.8	26.1	1.000003
95000.0	14.4	-42.5		21.7	59.1.6	270.4	20.9	1.000003
95500.0	14.1	-42.3		21.2	591.9	266.3	15.7	1.000003
96000.0	13.8	-42.1		20.8	594.1	24.8	1.000003	
96500.0	13.5	-42.0		20.3	594.4	19.6	1.000003	
97000.0	13.2	-41.8		19.4	594.6	1.9	1.000003	
97500.0	12.9	-41.6						

STATION ALTITUDE 1051.00 FEET MSL  
26 APR. 79 0820 HRS MST  
ASCENSION NO. 44

MKN SIGNIFICANT LEVEL DATA  
110010044  
WALLEN

GEOPOTENTIAL COORDINATES  
53°16'7.1" LAT UTM  
106°45'11" LONG UTM

GEOPOTENTIAL ALTITUDE DECAMETERS	DIRECTION DEG (TAN)	SPEED MPS	WIND DATA H-5 MPS	EMI MPa	TEMPERATURE DEG C	DEW PT DEG C	WTR DEG C	TEMPERATURE AIR DEG C	PRESURE MILLIBARS
297.1*	9999.000	9999.000	-9999.000	-9999.000	94	94	94	41.4	1.260+1
265.0	111.	5.	-2.	-5.	77	77	77	45.3	2.000+1
256.*	328.	2.	-2.	1.	77	77	77	49.0	2.340+1
259.	116.	14.	6.	-12.	99	99	99	49.9	3.000+1
222.4*	349.	3.	-2.	1.	94	94	94	55.8	3.900+1
227.*	85.	7.	-1.	-7.	77	77	77	59.8	5.000+1
197.9*	330.	4.	-3.	2.	77	77	77	61.4	5.760+1
189.6*	325.	3.	-2.	1.	99	99	99	59.8	6.560+1
185.7	69.	4.	-1.	-3.	77	77	77	61.0	7.000+1
182.1*	83.	6.	-1.	-8.	77	77	77	59.7	7.420+1
173.1*	302.	20.	-11.	17.	77	77	77	61.5	8.580+1
163.7	291.	35.	-12.	32.	94	94	94	68.7	1.000+2

\*\* WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 4051.00 FLEET MSL  
26 APR. 79 0820 HRS MSL  
ASCENSION NO. 44

MANUAL OF LEVELS  
1600-1604  
JALTEEN

תְּרַחֲדָה כְּעַקְעַנְתָּה  
יְהָוָה יְהָוָה לְאַתְּ  
יְהָוָה יְהָוָה לְאַתְּ

PRESSURE GEOPOTENTIAL	AIR	TEMPERATURE	KELVIN	WIND DIRECTION	WIND VELOCITY	WIND VELOCITY (IN)	WIND VELOCITY (KNOTS)
MMILLIBARS	FLEET	WEIGHTS	PERCENT	DEGREES	DEGREES (IN)	DEGREES (IN)	DEGREES (IN)
650.0	4943.	18.4	1.4	32.	9994.0	9994.0	9994.0
800.0	6633.	13.6	-1.1	38.	9994.0	9994.0	9994.0
750.0	8421.	9.0	-2.1	45.	301.5	13.9	13.9
700.0	10263.	4.9	-4.1	56.	260.0	17.3	17.3
650.0	12236.	.7	-8.5	56.	277.3	19.0	19.0
600.0	14330.	-3.6	-9.3	246.3	246.3	246.3	246.3
650.0	16570.	-8.3	-13.2	66.	269.7	30.0	30.0
500.0	18976.	-13.3	-22.4	46.	269.7	36.4	36.4
450.0	21582.	-18.0	-26.7	46.	260.1	43.3	43.3
400.0	24421.	-25.5	-30.3	61.	260.1	46.6	46.6
350.0	27551.	-33.2	-39.7	52.	297.6	52.5	52.5
300.0	31053.	-40.4	-45.0	278.6	60.8	60.8	60.8
250.0	35033.	-51.6	-56.5	249.5	56.8	56.8	56.8
220.0	39715.	-57.6	-62.6	249.5	73.1	73.1	73.1
175.0	42446.	-59.4	-64.5	287.0	74.0	74.0	74.0
150.0	45638.	-59.8	-64.8	293.1	68.3	68.3	68.3
125.0	49313.	-66.9	-72.0	295.0	59.9	59.9	59.9
100.0	53717.	-68.7	-74.2	290.8	67.4	67.4	67.4
80.0	58205.	-60.6	-66.0	320.0	12.3	12.3	12.3
70.0	60937.	-61.0	-67.0	70.0	7.2	7.2	7.2
60.0	64090.	-60.9	-66.9	305.7	11.9	11.9	11.9
50.0	67811.	-59.8	-65.8	65.1	13.9	13.9	13.9
40.0	72425.	-56.2	-62.2	345.9	5.0	5.0	5.0
30.0	78558.	-49.9	-55.9	115.9	26.9	26.9	26.9
25.0	82425.	-49.2	-55.2	60.6	3.7	3.7	3.7
20.0	87259.	-45.3	-51.3	110.4	10.1	10.1	10.1
15.0	93592.	-42.9	-48.9	274.5	31.2	31.2	31.2

AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

XX WIND DATA INVALID DUE TO MISSING KAN WILMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 4051.0 FEET MSL  
26 APR. 79 0420 HRS MST  
ASCENSION NO. 44

MRIN MANUFACTORY LEVELS  
110000044  
JALLEN

GEODETIC COORDINATES  
33°16'7.2 LAI UES  
106°49'51.1 LUN UES

GEOPOTENTIAL ALTITUDE DECAMETERS	DIRECTION DEG (TN)	WIND DATA		E- HPS	WIND DEP DEG	TEMPERATURE AIR DEG C	PRESSURE MILLIBARS
		SPEED HPS	N- HPS				
2693.	274.	16.	-1.	16.	99	-42.9	10500+1
2697.	110.	5.	2.	65.	97	-45.3	10000+1
2612.	9.	2.	-2.	99	97	-49.2	2500+1
2393.	116.	14.	6.	-12.	97	-49.9	3000+1
2208.	346.	3.	-3.	1.	97	-56.2	4000+1
2067.	85.	7.	-1.	-7.	97	-59.8	5000+1
1953.	30.	6.	-4.	5.	97	-60.9	6000+1
1657.	70.	4.	-1.	-3.	99	-61.0	7000+1
1774.	35.	6.	-5.	-4.	99	-60.6	6000+1
1637.	291.	35.	-12.	32.	99	-68.7	1000+4
1503.	275.	31.	-13.	26.	97	-66.9	1250+2
1341.	293.	35.	-14.	32.	99	-59.8	1300+2
1294.	287.	33.	-11.	39.	99	-59.4	1750+2
1211.	288.	40.	-13.	36.	99	-57.6	2000+2
1068.	284.	30.	-20.	29.	99	-21.6	2500+2
947.	279.	31.	-29.	31.	99	-40.4	3000+2
840.	288.	27.	-6.	26.	97	-33.2	3500+2
744.	286.	24.	-7.	23.	99	-25.5	4000+2
658.	283.	22.	-5.	22.	99	-18.8	4500+2
578.	284.	19.	-4.	19.	99	-13.3	5000+2
505.	296.	15.	-5.	15.	99	-8.3	5500+2
437.	298.	12.	-6.	11.	99	-3.6	6000+2
373.	277.	10.	-1.	10.	99	.7	6500+2
313.	203.	9.	-2.	7.	97	4.9	7000+2
256.	302.	7.	-4.	6.	91	9.0	7500+2
202.	9999.00	9999.00	-9999.00	-9999.00	99	13.6	8000+2
151.	9999.00	9999.00	-9999.00	-9999.00	17	16.4	8500+2

\*\* WIND DATA NOT COMPUTED DUE TO MISSING RAN AZIMUTH AND ELEVATION ANGLES.